# CLEVELAND AREA 99-4A USERS GROUPS NEWSLETTER

MAY, 1987

| OFFICERS | NORTHCOAST | TI-CHIPS | MEETING DATES | |
|---|---|---|---|---|
| | | | | |
| PRESIDENT | MARTIN SMOLEY 1-257-1661 | TERRY VACHA 225-5368 | NORTHCOAST 1:30 P.M. | TI-CHIPS 10:00 A.M. |
| VICE PRESIDENT | RICH JOHNSON 261-9274 | RUSS SHIMANDLE 1-887-5330 | EUCLIDIAN ROOM | NORTH ROYALTON LIBRARY |
| TREASURER | JIM MEKEEL 286-3179 | LIN SHAW 235-3912 | EUCLID SQUARE MALL | STATE ROAD & RT 82 |
| MEMBERSHIP | ELMO IACOBUCCI 585-2588 | JOHN PARKEN 331-2830 | THIRD SATURDAY | THIRD SATURDAY |
| | 2161 Pine Ridge Drive | 4172 N. 217th St. | | |
| | Wickliffe, OH 44092 | Fairview Park, OH 44126 | MAY 16, 1987 | MAY 16, 1987 |
| SECRETARY | CHUCK POULIN 731-6473 | MARY PHILLIPS 582-4009 | JUNE 20, 1987 | JUNE 20, 1987 |
| LIBRARIANS | ERNEST NITSCHKE 888-4845 | MARK MCCAULEY 235-8888 | JULY 18, 1987 | JULY 18, 1987 |
| | DON NITSCHKE 888-4845 | JOHN PARKEN 331-2830 | AUGUST 15, 1987 | AUGUST 15, 1987 |
| | BBS 216-944-1072 (24 HRS) | | SEPTEMBER 19, 1987 | SEPTEMBER 19, 1987 |

## EDITORIAL COMMENTS

We are continuing to feel upbeat about the future of our local clubs. Both NorthCoast and Chips reported new members and visitors on the Saturday(day) before Easter and excellent weather to do something else, but people chose to come to their local TI meeting. Great! Both groups are continuing to get the word out and it's working.

Most of the people had left the NorthCoast meeting when John Brennan (who comes up from Youngstown) pulled out his "TI-COMPACT PORTABLE" Believe me, the Compaq computer people had better watch out. This was something to behold. John has extended his PEB box, added a monitor (5", I think). This is a full-blown system with 2 disk drives, in a carrying case with handle. I didn't ask how much it weighed in comparison to a Compaq, but it does the job.

In this issue we are featuring the schematics for a chip (one) that will add 32K to your console. The previous 32K modification required a piggy-back of 8K chips and many more wires. This was being "Beta tested" at Tom Nellis' the day of the newsletter meeting, but was not up and running by the time I left since someone (not Tom) soldered the connections in reverse. If these guys figure out "right" from "left" this machine will be demo'd at the next Northcoast meeting.

I know it was just too nice last month and too soon after a big weekend holiday for anyone to want to come to my "fireside" meeting. However, the invitation is open again next month for Monday night, May 18. I purposely didn't put in an address last month so that you wouldn't pop in without a call. But the address is 20311 Lake Road, Rocky River and phone Deanna at 333-5986. We could start a group project to learn something specific, or just pick each other's brains...whatever you would like.

There just wasn't any space left over last month for some additional comments. First, the Home Contole program reviewed last month was DEVELOPED and WRITTEN by Paul Wheeler of the NorthCoast group for commercial distribution. This program was demo'd at the last NC meeting and looks like a winner if you like to have these devices around your house. You can now do anything the BIG BOYS do in this respect. The cost of the software is only $10 and is available from our own EDU-COMP. This makes two Fairware programmers and a commercial programmer from the Cleveland Area. We should be proud that we have provided the environment for these people to develop their skills.

The RLE graphics were in last month after six months of frustration with the people at Asgard. After a couple of "nice" letters, I sent a "nasty" and within two weeks had the package. They claimed they weren't making any money from this service and had to put it on the back burner. I let them know they would lose plenty through poor public relations if they didn't respond and asked for the pictures or our disks and money back so that they could be put to better use. We got the disks. But in the future, I will be wary about these offers. Thought we would be one of the first clubs in the country to have a full library of RLE disks, and instead were one of the last. I don't like to come in last!!!

We need help again! Is there anyone who would like to be the FREEWARE librarian. Your job would be to scan the newsletters, MICROpendium, etc. and send for anything and everything that is freeware.* The clubs will reisburse you for all postage, mailers, disks, etc. With a backlog of programs already and having to be out of town much of the time, our present head librarians could use some assistance in this respect. Please give me a call (Deanna-333-5986) if you are interested. A good place to start would be the list published in our recent newsletter. We want to stay out in front in this area also.

Just because a person takes a position within the club, it doesn't mean that a magical window in the sky opens and information starts falling through. These people have to dig and work and we need more diggers and workers in order to stay on top. While I am on my soapbox, I appreciate very much the fact we have had a lot of local people writing articles for the newsletter. However, It is very hard for me to get them in the current issue if I receive them the day of the newsletter meeting and then have to sit and retype in the information. You may not know that we are on a very tight schedule which we try to maintain so that your newsletter will hopefully reach you before the next meeting. We meet on the 4th Saturday..the week after the regular meetings. I try to have as much typed in from the newsletters I receive during the month as possible. With luck, I can go home, slap it together, write the front page and get it to Frank Jenkins on Monday A.M. (I have to get it to him by WED A,M. at the latest). This gives 2 extra days to get it in the box for you. If I come home from the newsletter meeting and have to retype everything that is handed to me, it doesn't go out until Wednesday, or else the articles have to wait until the next issue (something I haven't done yet). It is true I do use my MSDOS machine for typing a lot, but I am not so crazy as to sit and retype stuff that could be on disk...especially highly technical, or data oriented articles. PLEASE have these things to me by the WEDNESDAY AFTER the regular meeting, on disk, if possible. All you will be out is the 40 or 50 cents postage, as I will return disk and mailer to your newsletter rep at the meeting. Thanx.

---

CONTENTS


| | |
|---|---|
| TIGERCUB UPDATE.....PAGE | 2 |
| EXECUTIVE NOTES - NORTHCOAST..... | 3 |
| EXECUTIVE NOTES - TI-CHIPS..... | 3 |
| 300 BAUD OVER 1200?? - TERRY VACHA - CHIPS..... | 4 |
| CLEANING EPSON PRINT HEAD - TERRY VACHA - CHIPS.. | 4 |
| GETTING IT ON WITH GENIE..... | 5 |
| FOR SALE..... | 5 |
| HARDCOVER LIBRARY - DICK ALDEN - NC..... | 6 |
| FUNNELWEB LOAD PROGRAM - TERRY VACHA - CHIPS..... | 7 |
| TRANSLITERATE COMMANDS - HARRY HOFFMAN - CHIPS... | 7 |
| TI-WRITER GRAPHICS ..... | 8 |
| 98-CENT RLE DIGITIZER..... | 10 |
| 32K ON ONE CHIP..... | 11 |
| PICTURES OF 98-CENT RLES..... | 12 |


---

FROM TIGERCUB SOFTWARE....
156 Collingwood Ave., Columbus, OH 43213

NUTS & BOLTS DISK #3 is now ready, and all three Nuts & Bolts Disks have been reduced to just $15 each!

Disk #3 contains 140 more mergeable subprograms, including 19 screen character fonts and character redefinitions, 17 screen display routines, 6 screen formatting, 8 plotting, 6 joystick and keyboard, 32 math, 4 time and date, 10 input and accept, 9 string handling, 13 file handling, and 9 miscellaneous. The 11 pages of printed documentation include an example of the use of each subprogram.

Disk #2 contains 108 subprograms, including 20 character fonts and related routines, 21 screen displays, 3 joystick, 13 math, 6 graphing, 3 self-changing, 10 programming utilities, 4 file handling, 6 sorting, 2 menus, 5 utilities, 4 word processing, etc., etc., with 10 pages of documentation.

Disk #1 contains 100 subprograms, including 13 character fonts, 13 display routines, 10 screen wipes, 8 pauses, 3 programming aids, 9 data saving and reading, 12 sorts and scrambles, etc., etc., plus a tutorial on the use f subprograms, and 5 pages of documentation.

These three disks now contain a total of 348 subprogram, all compatible and consecutively line-numbered so that any can be used in combination - almost like having another 348 CALLS available in Extended Basic!

The Tips from the Tigercub Disks #1, #2, #3 and #4 have been reduced to $10 each, postpaid. The 130 individual Tigercub programs have been reduced to $2 each plus $1.50 per order for PP&M. Cassette orders will only be filled until present stocks of blanks are used up. The Full Disk Collections have been reduced to $10 each. While they last,descriptive catalogs are $1, deductible from first order.

## NUTS & BOLTS UPDATES

There is a major bug in FORMATTER on the first Nuts & Bolts disk. The last statement in line 20171 should be SUBEXIT, not END. A minor bug in Nuts & Bolts #2 prevents using HIGHCHAR after HEAVYCHAR. To fix it, resequence HEAVYCHAR by RES 21008,1.

Some users have reported having problems with the subprograms which contain DATA, ON ERROR, or a flag routine. As is explained in the documentation of Disk #3, a READ statement will read the next unread item of DATA whether it is reading from the main program or from a subprogram, and whether the DATA is in the main program or in a subprogram, unless a different line item of DATA has been RESTORED. Therefore, be sure to RESTORE the next DATA line to be read after you leave a subprogram which contains DATA - it is good programming practice, anyway, to RESTORE all DATA before you read it.

When an error is encountered, program execution responds to the last open ON ERROR statement, whether that statement is in the main program or in a subprogram and whether the error occurs in the main program or in a subprogram. Therefore, be sure to restate any ON ERROR in the main program after leaving a subprogram which contains ON ERROR.

Many of the subprograms contain a flat routine immediately after the SUB, in the form IF f=1 then (line number) :: F=1. This speeds execution by skipping over initialization after the first CALL, but may make it impossible to reuse the subprogram. For instance, a redefined character set which has been cancelled by CALL CHARSET cannot be CALLed again. In many cases, this flag can be deleted. Or, the subprogram can be renumbered and renamed, merged and CALLed under a different name. Or, an additional parameter can be added to the SUB and the CALL, to turn the flag on and off.

## EXECUTIVE NOTES - NORTHCOAST

The April meeting astounded me. The weather was wonderful and it was the Easter holiday weekend which are pretty good reasons to expect a small turnout for any type of meeting. However, I counted approximately forty people at this one, and we had several guests with two or three new members joining. That's Great!.

I think that I am settling into a good routine as far as meetings are concerned, and I am attempting to control my tendency towards flamboyant monologues. This effort on my part helped speed the meeting along, and with excellent reports from committee heads, and a good demo of Home Controle 99 by its author, Paul Wheeler, the members were totally involved.

The Home Controle 99 program appears to be one of the best TI 99/4A environmental control software packages on the market. Also, the job that Paul did in creating a user-friendly program, to convert basic language input commands into binary bit interface commands that the controler can understand, is a phenomenal task. This type of work demonstrates that we have some very talented members.

Tom Nellis displayed the newest hardware item available in console RAM. It uses a single HM 62256 static RAM chip for the 32K of memory, and only needs 4 connections solderd into the console to complete the job. This item comes completely assembled for only twenty five dollars. Tom also displayed the new tape library, and tape library catalog for any new members who may have tape systems.

The question and answer portion of the meeting finally got off the ground. We had some very good questions from the audience, and we had some even more interesting answers from that same audience. Luckily we had a few people like Walt Ryder and his son to answer the really hard Editor Assembler type questions, and the whole thing went very smoothly.

One of the new members commented that he really liked the atmosphere at our meetings. He said our members were very friendly and knowledgable, and that he was glad to find a group with this much enthusiasm for the TI.

## The Next NorthCoast Meeting

The next meeting will feature a Forth demonstration by Ron Minadeo. He has been working with the ten Forth disks we have in the library for several months and has set up several of the utilities for speed and convenience. It should be very interesting.

## Special Note:

As Deanna mentioned in the last newsletter there is an idea springing into a movement, it's called "Adopt A Zipcode". If you adopt your zipcode it means that you will pay for all or part of a mailing which normally would be $25.00. There is no work involved in this plan, only the cost of the postage. Your return address would be placed on the mailer to encourage the recipient that someone in their neighborhood is already a part of this club. If you are interested please contact me to get your name on the list.

See you all at the next meeting. Marty.

## EXECUTIVE NOTES - TI-CHIPS

The April meeting at the North Royalton Library was attended by many enthusiastic and motivated computer users. There were many new faces. We hope each visitor learned something and will consider becoming a member.

Mark McCauley announced that the 20-disk collection of RLE graphics had arrived at last. The contents of the disks are various pictures which have been generated from photographs, comics, and other media . They can be used with many of the graphics-oriented programs, such as TI-Artist and The Printer's Apprentice. The group was treated to a small sampling of the available pictures.

John Parken had good news for TI-users who have a cassette-based system. Through the efforts of Tom Nellis of the NorthCoast group and the generosity of the Youngstown group, the tape library will be cataloged and documented similar to the disk library. John will then copy cassettes for club members who want them.

This meeting marked the initiation of the group's newly purchased computer system, which included a console, XB, a PEB box, 32 K card , RS232, two disk drives and many software packages. With only a few "bugs", it worked well.

One of the major functions of any users group is to learn. To that end, many members are contributing what they know for everyone's enlightenment. Harry Hoffman shared what he has done to make it easier to use the Transliterate Command (.TL) for TI-Writer. This command can be used to assign one or more ASCII character values to another ASCII character value. He used it to redefine many unused function keys. Harry would like to know more about Assembly Language, Multiplan and modems.

If you have something on these or other subjects, would you be willing to share it with others? Contact your officers for a spot in next month's meeting!

Terry Vacha shared information about the cleaning of an Epson printer's printhead. He provided an instruction sheet which should be very helpful for anyone trying out his ideas. But AS Terry said, "BE CAREFUL, OR YOU'LL RUIN SOMETHING!" Oh, well -- where would we be now if nobody had taken a chance with new ideas.

Russ Shimandle demonstrated two educational programs he loaded from cassette. They showcased the computer's ability to synthesize voices (Bert & Ernie) and delineate many colors (volcanoes tutorial).

Do you want to print banners? Les Kee demonstrated a short program which will print a horizontal banner of 8-inch letters. He showed how to tinker with the program to change the size of each letter.

The monthly raffle was for a box of 15 disks full of programs. I spent $3 and won the box. What a bargain -- only now I have to buy a larger disk storage box for them.

See you on may 16.

MARY PHILLIPS

## 300 Baud over 1200??
terry aa259

Last December I was elated to pick up a 1200 baud modem. The increased speed when communicating on line was really a joy. We know that Genie has the same rates for 300 as for 1200 baud. I found that Knowledge Index, a service I like, also has the same price for both baud rates. Free-Net is also much nicer at 1200 baud.

But then why the title above? Well, I also spend some time on Compuserve. I plan out my calls, and even use auto- logon files. But the last 3 months my bills have doubled! After watching my useage the past week I think I've found and corrected the problem. Let's compare Compuserve with Knowledge Index. Knowledge Index sends a constant stream of information, uninterrupted--even during peak hours. On the other hand Compuserve sends a few lines, waits for input, sends a few lines, waits for input, etc. As a result, even though my cost for 1200 baud was twice the hourly rate and I should have been receiving 4 times the information, I ended up paying more. I found that my usual time on Compuserve was about 4 minutes REGARDLESS OF THE BAUD RATE!! The time came out the same because of the time spent waiting for the system to find the TI-FORUM, list the messages of interest to me, tc. Now, understand that I have NOT made any scientific study here. My only point is that don't assume that you're bill on a system will cut in half when you "upgrade" to 1200 baud from 300! My bill didn't because my time on the system was the same but the hourly cost had doubled.

Now, with some services I switch to 300 baud before calling, while with other services like Free-Net, I use 1200 baud.

//////////// aa259////////

---

## CLEANING THE EPSON PRINT HEAD
AA259 terry

First the disclaimer. Don't mess with your printer UNLESS YOU ARE MECHANICALLY INCLINED AND KNOW WHAT YOU ARE DOING! I do not guarantee the results below, in fact, you may screw up your printer

Now, if you want to brave it on your own responsibility, here's one thing you can do. First, you'll need to keep the rack that holds your printhead at the left end of its travel. You can do that with a short program like this:

```
100 OPEN #1:"PIO",OUTPUT
110 FOR I=1 TO 100
120 PRINT #1:"////^^^gggg"
130 NEXT I
140 CLOSE #1
```

That program should cause the printer to fire all the pins it usually uses and keep the print rack at the left end of travel. You may have to substitute "RS232/1" or whatever you usually use for your printer. Run the program and make sure it does what I said it should do.

Now look at the instruction book that came with your Epson printer. It will show you how to remove the print head from the rack. There is a little silver colored lever on the lower left of the head which has to be pulled back. Then a few gentle wiggles upward of the print head and it will come straight up and out. Don't remove the ribbon cable and DON'T LET IT GET DAMAGED while you do this. Be ready to shut things off if something doesn't look right.

At this point your supposed to know how far the print rack will sing to the right. Keep the printhead even further to the right of that position so the rack does't run into the printhead.

Now hold the printhead with the printing end of it point down into the printer. That is, the pins that normally hit your paper are now pointing down into your printer.

Notice you can see all the grime of old ribbons wrapped around the wires that are your printing pins. With the pins still pointing DOWN, pour an eye dropper of ALCOHOL into the area just behind where the head hits the paper--that is, where all the little printing wires are. Be sure you have something under the printhead, otherwise all this alcohol runs into your printer--not good!

Now the interesting part. While holding the printhead down, with a little alcohol in its end, run the program above. That will cause the pins to run up and down through the alcohol and even out the little pin holes, thus dissolving some of the ribbon grime that you built up in there.

After getting most of the alcohol out(the rest should evaporate), place the printhead back into the printer properly, don't return the ribbon, and again run the program above. Let the pins just hit clean paper without the ribbon. You'll see even more grimmy ribbon ink cleaned out of your printhead.

When you're all done, be sure to put your printer completely back together with all the parts in the right spot. Again if you are not careful, YOU'LL RUIN SOMETHING!!

If you've done this carefully, and gotten all the grime out of the printhead, and if you didn't wait too long in the life of your print head to clean it, then you should be rewarded with a beautiful printed page now when you dump to the printer.

## GETTING IT ON WITH GENIE
## BY KEN SCHMIDT - MOCUS MARCH 87

GENIE is a terrifically large database encompassing most social interests. I only use the TI Board so that is all I can tell you about. The information supplied here should save you time and money with GENIE. Will describe an average log-on.

I use Robert Jones V 1.16 of Fast-Term for downloading messages and a list of new downloads available. I have found this program to have the best auto-log to disk. It doesn't lose characters during a dump from buffer to disk.

Sign on for Messages: #ABC1234,PASSW,375

This will get you to the BBS menu fast.

3) Set Category:
   Cat.1 Watering Hole
   Cat.3 Software Helpline
   Cat.4 Hardware Helpline
   Cat.6 Myarc Land

These are the most popular categories.

7) Read: ALL NEW NOR(eply S(croll)
   CTRL S - to stop scroll
   CTRL Q - to restart scroll

After all messages are logged to disk

17) Exit
   At prompt > M 576;4

This will take you to download, browse to read all new program descriptions, auto-log buffer still open. Q - Quit

At Prompt > M 920;1

This will take you to billing if you want to see how much you have spent so far. Enter date range at prompt.

Sign-off: At prompt > BYE

I then print the file, read it and decide what I want to download. I have set GENIE to format my monitor screen to 40 col. x 24 rows. This works fine with a print utility I use by Peter Noddie that prints two 40 col. rows in Elite type on a page. Saves a lot of paper. For the program to work right, you must check the file with TI-Writer, etc. to make sure all lines are 40 cols. Most are. Then print to disk with the "PF" option - C DSKx.GENIE/A, /B, /C, etc. I use a Horizon and Foundation ramdisk for saving edited files and printing. Make sure to load the file in 600 line blocks.

LF 1 600 DSK1.GENIE
   601 1200 DSK1.GENIE
   1201 1800 DSK1.GENIE etc.

By using 600 line files you will be able to make one continuous printout without any wasted blank paper between files and the folds in the right place - not in the middle of the text. One 600 line file will print 5 - 8 1/2 x 11 sheets.

Sign on Download: #ABC1234,PASSW,576;6

This will take you to download prompt for file no. you want to download and after transfer is complete will ask if you want to download another file, or quit.

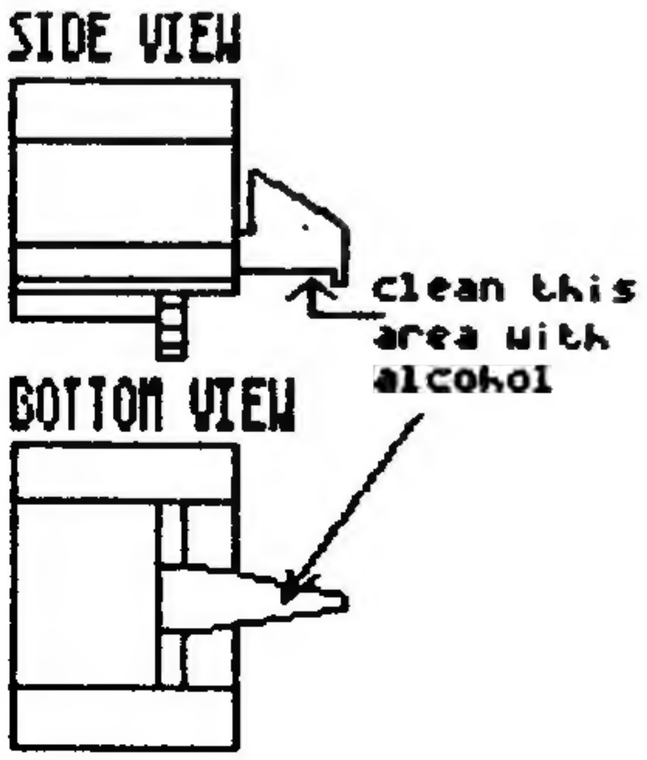
At prompt > file no: 123
Start file transfer
Download complete
Download another (Y/N)?
If quit enter "BYE" at prompt

A lot of GENIE files are packed with Archiver to simplify downloading groups of related programs. You will need this program to unpack them.

If you don't have a 1200-baud modem, I strongly recommend you get one. At 300-baud data networks can be very expensive. Good 1200 baud modems can be had for less than $200. I use an ADC from DAK Industries in California. Have had it over a year and it has worked flawlessly. Current price if $149.00. Has all Hayes features and more.

---

Epson Printer





**F O R  S A L E**

1 SS DISK CONTROLLER FOR PEB BOX
NO DOCUMENTATION - $40
1 SS DISK CONTROLLER FOR PEB BOX
WITH DOCUMENTATION - $50
32K CARD FOR PEB BOX - $50
1 SHUGART SD DISK DRIVE - AS IS - $25
300 BAUD UNITECH COMBINATION TELEPHONE-MODEM
ORIGINAL COST $100 - SELL FOR $50
1 DISK MANAGER MODULE - $6.00

CHUCK GILBERT - 226-5177

## MORE OVERVIEW OF THE HARDCOVER LIBRARY
## BY DICK ALDEN - NORTHCOAST

99er or HOME COMPUTING MAGAZINE OR WHATEVER!

June 83,V.2 #8 - The Tuning Fork / PGM; Multiplan Medium; Our Pal Logo Turtle; A low cost RS232 interface through the joystick porot.

Vol. 4 #1 - Logo Times; Microcomputer Accuracy; TI Writer Tutorial; Just Assemble Melody; Music in Mini Memory; Have No Fear Assembly Language Won't Bite, Part 3; Logo Times.

Vol.5 #6 - File Director; NanoAssembler; Assembling an Algorithm.

Oct. 83 Vol 2 #12-PicoProcessor; Have No Fear: Assembly Language Will Not Bite; Multiplan Medium; Logo Times; Turtle Strut.

Vol 5 #5 - Nanoprocessor; Algorithm A Trick; Popping The Return Stack.

Vol 5 #6 - File Directory; NanoAssembler; Assembling An Algorithm.

THE BEST OF 99'ER 1981

1. Starting Out - Page 9
2. Programming Techniques and Languages page 33
3. Inside Basic and Extended Basic - page 69
4. Logo - page 93
5. Assembly Language - page 129
6. Computer Assisted Instruction - page 163
7. Computer Gaming - page 221
8. Applications and Utilities - page 287 - This chapter includes a discussion of the Interactive Forms Generator, a program in our disk library.

Appendix - page 355

COMPUTER PROGRAMMING IN THE BASIC LANGUAGE by Jacobs, French, Moulds, Schuchman, Allyn and Bacon, Inc. 1983

1. PEOPLE AND COMPUTERS - Control Statements, REMark Statements, The Computer Processing Cycle, Coding Forms, Common Errors in Programs, Keyboard Input, Correcting Typing Errors, The List Command, Errors After RUN, Inserting Lines, BASIC
2. ELEMENTS OF BASIC
3. DATA IN AND OUT - The INPUT Statement, The ? Signal,READ and DATA Statements, Common Errors in READ and DATA Statements, The PRINT Statement, Floating Point Notation.
4. FLOW CHARTS AND PROGRAM BRANCHING - Flow Charts, Flo Chart Symbols, Decision Making and Branching, The IF-THEN Statement, BASICI Decision Symbols, the GOTO Statement, Looping, Trailer Data, Skipping Steps in a Program, Conditional and Unconditional Branching.
5. FOR-NEXT LOOPS - Counting Loops, Components of a Counting Loop, FOR and NEXT Statements, FOR-NEXT Loop Flow Charts, FOR/-NEXT Loop Versatility.
6. ACCUMULATING AND TABLE HEADING - Accumulating a sum, Finding an average, Generating Data Internally, Counting the Addends, Functional Duput, The Tab Function.
7. BASIC FUNCTIONS - BASIC Functions, the ABS(Absolute Value) Function, the SQR(Square Root)Function, INT(Integer)Function, the RND(Random Number)Function, t SIN(Sine) and LOG(Logarithe)Functions.

SUBSCRIPTING - Subscripting, The Dimension Statement.

9. NESTED LOOPS AND SORTING - Nested Loops, Selection of Largest Number, Sorting
10. ALPHANUMERIC OUTPUT AND INPUT - String Variables, String Variables in BASIC Statements, Subscripted String Variables.
11. TWO-DIMENSIONAL ARRAYS - The DIM Statement, Data Input and the MAT READ Statement, Data Output and the MAT PRINT Statement.
12. FUNCTIONS AND SUBROUTINES - The Function Statement, The DEF Statement, Subroutines
13. MATRIX ALGEBRA - Matrices, Addition of Matrices, Subtraction of Matrices, Multiplication of Matrices

CONVERGING PROCESSES - The Converging Loop

AA. DEBUGGING - The Computer's Built-in Errors, RoundingError, Overflow Error, BASIC Programming Errors, List of Programming Error Messages, Correcting Programming Errors, Logical Errors

AB. ALPHABETIC SORT AND CURVE PLOTTING - Alphabetic Sort, Curve Plotting.

BASIC FROM THE GROUND UP - DAVID E. SIMON - HAYDEN BOOK CO. 1978

1. BREAKING GROUND - What the Computer Hasn't got-Brains, Nuts and Bolts of a Computer, Loaning Your Brain to the Computer(Flowcharting), Coping with the Terminal Numbers and Theri Idiosyncrasies.
2. THE CORNER STONE OF BASIC - Moving Numbers Around Inside the Computer (Let Statement), Getting Numbers Out (Print Statement), Doing Arithmetic, Getting Numbers in
3. ELEMENTARY ARCHITECTURE - Going Around in Circles (GOTO Statement), Making Decisions (if-then-Statement), Telling it Like It Is (REM Statement), Blessed Is He Who Expects the Worst, More Circles (FOR-NEXT Statements)
4. BUILDING UPWARDS - Packages(Functions), Packaging(User-Defined Functions), More Idiosyncrasies(Scientific Notation), Collections of Numbers(Arrays), Collections of Letters(Strings), Putting Things in Order, More About Packaging(GOSUB and RETURN Statements)
5. GARGOYCLES, GINGERBREAD, and GILT - Making the Big Decision (ON-GOTO Statement), More Ways of Moving Numbers Around(READ and DATA Statements), Yet More Collections (Matrices), Long-Term Memory(Files), Prettier Output (PRINT USING Statement).
6. ADMIRING THE EDIFACE: PROBLEMS FOR COMPUTER SOLUTIONS - Calculating with Very Large Integers, Printing Graphics of Functions, Playing the Game of Life, Using Newton's Method to Find Zeros of Functions, Simulating Probability Problems with the RND Function, Simulating Physics Problems.

AA. A Table of ASCII Codes
AB. Glossary
AC. A Summary of BASIC.

---

See article on P8

DHEIN'S
7 W AIRLINE HWY
WATERLOO IN 50703
TRUE VALUE HARDWARE
[319] 236 3861

## FUNLWEB LOAD PROGRAM
## AA259 TERRY VACHA

Some have wondered how to set up the Funnelweb load progras to incorporate their favorite programs as part of the Funnelweb menu. The great thing about Funnelweb is that it loads just about everything and can act like a ras disk on a floppy. You could, with a couple of drives, set up Funnelweb so that you basically leave two disks in your drives and every progras you use will cose up on the Funnelweb menu, whether it need EXB, E/A, TI-Writer loader, or whatever.

Well, after talking with Tom Nellis, and horsing around syself, I can offer these suggestions.

With Funnelweb you get two menus for yourself, one with numbers and letters that shows up right after the initial bootup, and one later under "User's List". Well, the menu on the "User's List" is taken care of with the "Ulinstl" progras which comes with Funnelweb". So, I won't discuss that one. I'll discuss the menu that FIRST appears at the beginning.

When you want to add your favorite progras to the menu, you need to alter the LOAD progras. To alter the LOAD program you need to know a "K" value. What's that?? you ask! Well the "k" value is the NUMBER OF THE MENU ITEM on the "LOADERS" menu of Funnelweb that successfully loads your favorite progras. For exasple, suppose a progras will load with the TI-Writer loader. That is item number "1" on the Funnelweb "Loader" menu. Therefore, you will set "K=1".

I have reproduced some lines of the Funnelweb "LOAD" progras below. I have also left some lines out. Below is just an exasple. You can see how I set up sy menu items and hat sy choices are when I turn on sy TI. Since I have a Ras disk, I designate it by DSKR, if your favorite progras is on DSK2, then you have to use that instead.

```
160 OP$(0)="1 TI-WRITER "
170 OP$(2)="2 EDIT/ASSM "
180 OP$(2)="3 Fast Tera "
190 OP$(3)="4 TI-Artist "
200 OP$(4)="5 Myarc DM "
210 OP$(5)="6 Dpatch "
220 OP$(6)="7 TI-Forth "
230 OP$(7)="8 Drive 1 ON"
240 OP$(8)="9 ARCHIVER "
250 OP$(9)="A MAXRLE "
260 OP$(10)="B TRACKCPY2 "
270 OP$(12)="C CASSETTE "
280 OP$(12)="D ..  "
290 OP$(13)="E ..  "
300 OP$(14)="F ..  "
310 OP$(15)="G ..  "
320 OP$(16)="H ..  "
330 OP$(17)="I ..  "

360 A$="DSKR.UTIL1" :: K=1 :: GOTO 320
370 RUN "DSKR.TIART"
380 A$="DSK4.DM" :: K=4 :: GOTO 520
390 A$="DSK4.DP" :: K=3 :: GOTO 520
400 A$="DSK4.FORTH" :: K=60 :: GOTO 520
410 DELETE "SD.3" :: RUN "DSK1.LOAD"
420 RUN "DSK4.ARCHIVER"
430 A$="DSK4.MAXRLE" :: K=4 :: GOTO 320
450 A$="CS1."!: K=2 :: GOTO 320
460 RUN "DSK2R.LOAD" ! OPTION #D
470 RUN "DSKR.LOAD" ! OPTION #E
480 RUN "DSKR.LOAD" ! OPTION #F
ETC.
```

Note that line 370 is siapler than the rest. Any progras that you want loaded which will run fros extended basic can be loaded with a siaple "RUN" statement. It's the E/A, etc. programs that require sore.

---

## TRANSLITERATE COMMANDS
## BY HARRY HOFFMAN - TI CHIPS

This is the setup I use to define Pica type with the line spacing needed for approxisate double spacing. The TRANSLITERATE COMMAND (.tl) can be used to redefine sany unused FUNCTION KEYS. I set this up for sy daughter, wife, and son, who are all going to school. A large chart was sade and hung on the wall so they could easily use the functions. You have to understand that none of the above people, with the exception of sy daughter, has any computer experience, and I wanted thes to take advantage of the power of the TI99/4A. As far as that goes, I'a still in the dark on sany functions of the TI computer and need help in sany areas, including learning Assembly language, Multiplan, and how to use a sodes properly!

Following is a chart we use of the .TL commands used for the SG-10 printer.

| ASCII CODE: | PRINTER COMMAND | KEY PRESS |
|---|---|---|
| 91 = [ | 27,45,1 = Underline on | FCTN R |
| 92 = \ | 27,45,0 = Underline off | FCTN Z |
| 93 = ] | 27,52 = Italics on | FCTN T |
| 96 = ` | 27,53 = Italics off | FCTN C |
| 123 = { | 27,66,1 = Pica Print | FCTN F |
| 125 = } | 27,51,32 = Linespacing | FCTN 6 |
| 126 = ~ | 27,69 = Emphasized print | FCTN W |
| 124 = ! | 27,71 = Double Strike | FCTN A |
| 60 = < | 27,72 = Cancel Db. Strk | SHIFT < |
| 62 = > | 14 = Double Width | SHIFT > |

You can sake up your own commands for your printer! Don't be afraid to try something difference because the only thing that could happen is that you waste a couple of sheets of paper and sose time.Have fun!

## PRODUCING ART WITH THE WORD PROCESSOR
## PART ONE - BY ANNE DHEIN - FROM CHICAGO TIMES 48/87

How many times have you wished you could take a design you've drawn and add it to your text using the TI-Writer? You can, if you have a printer that is capable of producing dot graphics. How well you can do it depends on the combining of two factors that are not always well understood - that the printer controls for your particular printer and the transliterate command in TI-Writer.

The transliterate command has to do with the ASCII character codes listed on page 145 of your TI Writer manual. Any character codes can be changed, or "transliterated" to represent any other characters. This is a powerful feature of the TI-Writer, but it is almost ignored in the manual - perhaps because the various brands of printers interact differently with the transliterate command.

The information here comes from experimenting with the TI Epson printer. It should work without much change for Epson Compatible printers such as the Gemini 20X. Although the codes may be somewhat different for other printers, the principle is the same.

Printer graphics consist of one or more columns of dots. For the TI printer there is a total of 480 such columns across a line. Each column is 8 positions high and a dot can appear in any one of the 8 positions. Each position has a number associated with it:

```
-----
|128|
|---|
| 64|
|---|
| 32|
|---|
|  8|
|---|
|  4|
|---|
|  2|
|---|
|  1|
-----
```

If the value of each dot were added together, you would come up with the sum of 255. This is the highest number you will use, and it would mean that every single position was occupied with a dot. Suppose dots 128, 16 and 2 were to be used. The sum would be 146. Any combination of dots you can think of will add up to a unique number between 1 and 255. In a column where no dots were used, a zero would be the value.

To start with, let's draw a single character that matches the text characters in size. A normal printer character is 6 columns wide including the right hand column, which is left vacant so that characters will not run together. Except for lower case descenders, the bottom positions are not used either. Designing standard size characters will allow you to use them quite freely within your text, even with such commands as adjust center. The easiest way to design something is by using graph paper.

```
-------------
128 |_|_|_|_|_|_|
 64 |_|_|#|_|_|_|
 32 |_|_|#|_|_|_|
 16 |#|_|#|_|#|_|
  8 |#|_|#|_|#|_|
  4 |#|#|#|#|#|_|
  2 |_|_|#|_|_|_|
  1 |_|_|_|_|_|_|
```

The sum of the first column is 24, and for the second, 4. The used positions in the third column add up to 126, and the next two columns are 4 and 24. The last column is 0. To send the data, the printer must be switched from text mode to graphics. The normal density graphics mode is entered with the ASCII codes 27 and 75. The 75 must be followed by two numbers which tell the printer how many columns of graphics to print on a line. Unless you are going to send more than 255 columns of data values (which is unlikely), the first number must be the EXACT number of columns you want to print, and the second number zero; for our example, 6. The graphic data immediately follows the second number. Our string of numbers now looks like this: 27,75,6,0,24,4,126,4,24,0.

The transliterate code is now typed into the editor part of the TI-Writer. We will take any keyboard symbol, such as the exclamation point which has an ASCII value of 33, and change it to represent our graphics. The transliteration code is a period followed by TL so the completed string looks like this:

> .TL 33:27,75,6,0,24,4,126,4,24,0 <

It should be on a line by itself and no carriage return should follow it. Once we have this code at the head of a document, we can use the special character within the document any time by simply typing in an exclamation point. When the document is run through the formatter, the anchor will appear on the printed page wherever the exclamation point has been placed.

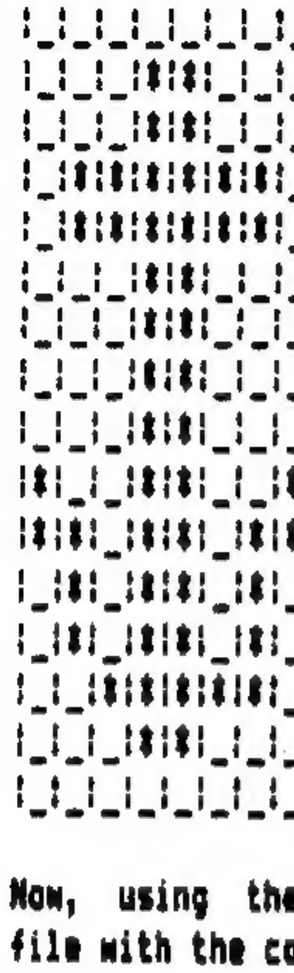
The number of small characters you can create and scatter freely throughout your document is almost unlimited! You can use just a few ASCII values you don't need in the text and use them over and over. Or, you can design a whole set of characters such as a special alphabet, each with its own unique value.

Now, let's try something just a little more difficult. This next design extends 9 columns instead of 6. If the transliterate code contains data for more than 6 columns of graphics, the device name for your printer will need to have a .CR after it in order to suspend the carriage return function. Since .LF is the normal default on the printer, you will need to add line feeds to each line you want printed. This means all text, graphics and spaces, but not the transliterate codes. There are several ways to add line feed characters to your text. Probably the easiest is to run the document through the formatter, using DSK!>FILENAME as the print device. Or, using special character mode; type control U, shift J, control U. A transliterate code could also be used. You will also need to remove all carriage return symbols from your text; you can do this with the Replace String command.

Another reason why working with larger images seems more complicated is because when a graphic design extends to other lines the spacing is wrong for it. Standard spacing is 6 lines per inch, that is, 1/6 inch per line. But spacing can be set for as little as 1/72 of an inch to as much as 1 13/72 inches. The printer control codes for this are 27,65,n; where n is a number between 1 and 85. 1/6 is equivalent to 12/72 so standard line spacing would be represented by 27,65,12. The spacing we want for graphics is 8/72, or

27,65,8. I chose the = (ASCII 61) and > (ASCII 62) signs to transliterate: .TL 61:27,65,8 will give us the spacing we need for graphics and >TL 62,27,65,12 will change it back to standard spacing for text.

---




This time two transliteration codes are needed - one for each line of columns. From the left, the top 9 columns will have these data values: 0,24,24,127,127,24,24,0,0. If a "1" is used for the first character, the transliteration code will look like this: .TL 49:27,75,9,0,0,24,24,127,24 ,24,0,0. The ASCII value for one is 49; 27 and 75 are the codes needed to switch to graphics mode; the 9 and 0 are the units which tell the printer how many columns of graphics will follow. For the second transliteration, we'll use "2", which has an ASCII value of 50; .TL 50:27,75,9,0, 96,56,4,254,254,4,56,96,0.

Now, using the TI Writer editor, prepare a transliteration file with the codes. Save it under the filename TEST. The file should contain these lines:

```
.TL 61:27,65,8
.TL 62:27,65,12
.TL 33:10
.TL 49:27,75,9,0,0,24,24,127,127,24,24,0,0
.TL 50:27,75,9,0,96,56,4,254,254,4,56,96,0
=
1 ANCHORS!
2 AWAY!
>12!
.TL 61:61
.TL 62:62
.TL 49:49
.TL 33:33
1 2 !
```

---

Print the file through the Formatter using the device name you normally use, except delete the .LF and add CR. If it doesn't work, you may need to experiment to find what's right for you. Notice that the transliteration codes do not appear on the printed page at all, nor have the lines they were occupying been saved. The "1" shows up as the top part of the anchor and the "2" represents the bottom part. The equal sign narrowed the line space (look how close the two words are), but the greater than sign restored standard spacing.

As you make bigger and fancier designs, you will find that sometimes the transliterate commands just don't seem to work the way you think they should. Then you'll have to spend some time debugging. Here are some things to keep in mind:

Does every, single transliterate code start with a period? And is there a space between the .TL and the ASCII value to be transliterated? This will be the only space in the string. Make sure there are no extra spaces and no skipped commas. Keep each .TL on a line to itself. And, contrary to what you may have heard, DO NOT put carriage returns behind any .TL codes that switch the printer to graphics mode. Don't use carriage returns at all when using

Do you have the right number of data values specified for each graphics code? For the code .TL 49:27,75,N1,N2,1,2, 3,4,5,6 the value of N1 should be 6 because there are 6 data units following. If N1 is any number up to 255 then N2 is 0. If N1 is more than 255, it is represented by its actual number minus 255. For example, 258-255 = 3: N1 would be 3 and N2 would be 1.

Once you have transliterated your ASCII values properly, are you actually using them? .TL 33:10 changes the exclamation point to a line feed, but until you actually insert the ! into the document, nothing happens.

Do one or two of your characters show up as blanks? TI Writer reserves the use of the ampersand (shift 7), at sign (shift 2) and circumflex (shift 6) for its own purposes. It is best to stay away from these characters.

Are you printing your document through the formatter and are you using .CR at the end of your device name? If all else fails, check your values once more. Sometimes the data values 8, 12 and 13 will cause printer gliches. You may have to redesign your graphics slightly to get rid of the offending values.

Again, the suggestions in this article are just that - ideas for you to use in your own experimentation. Many printers also have double density graphics and some even go beyond that to very high resolution graphics. You may also want to consider using condensed, enlarged and enhanced print, and whatever other capabilities your printer may have. Letterheads, logos, monograms, emblems, maps, borders - there doesn't seem to be anything that the Ti Writer can't do. Taking everything into consideration, there is still a lot to learn about the transliterate codes - especially the ones concerning graphics. If you have some ideas of your own, or if you have gotten good results with another kind of printer, share it with us!

# TI WRITER GRAPHICS

PRODUCING ART
WITH THE WORD PROCESSOR
PART TWO

BY ANNE DHEIN

ANNOUNCING - THE ALL-NEW, SUPER-DUPER
HANDY-DANDY, 98 CENT, DO-IT-YOURSELF,
WAXPAPER R.L.E. DIGITIZER!!
BY RAY KAZMER, SFV 99ERS - MARCH, 87

When I saw my first RLE, I thought, "GOLLLL-LEEEE! I'd SHORE like to draw ME a pit-chur like THAT!!" Then I found out that it takes something called a "digitizer" to make an RLE and THOSE things could cost a LOT more than my '66 Chevy (fer-shirrrr!) Since my TI-ARTISTic talents were FAR from perfect, I decided I'd try to make a CHEAP digitizer, one which required very little talent to use, but would yield a fairly good RLE.

"Tracing" a picture, then sticking the paper to my TV screen, so I could move TI-ARTIST's cursor under it (drawing as I went) seemed a good idea, but regular tissue paper wouldn't let me see my cursor CLEARLY enough! I tried "plastic wrap," which certainly DID allow me to see the cursor, but wouldn't hold ANY kind of ink! Besides, one touch and it was all SMUDGE, SMUDGE, SMUDGE! And you know how it LOVES to " cling to itself!" Mur-der!

While shopping, I spotted a roll of WAXPAPER (98 cents for 100 feet) AND a (9"X12") cardboard folder (with "pockets" inside) used by school kids. Though the folder was way too big for my TV screen, the drawings of ODIE and GARFIELD on the cover (my favorites!) seemed to be just about right.

At home, I taped a hunk of waxpaper onto the folder, then QUICKLY traced over every line, "etching" the image into the waxpaper with a mechanical pencil (with the lead retracted.) THAT WAS A MISTAKE!!! If you decide to try my "digitizer" yourself , trace with GREAT CARE! Make your tracing as ACCURATE as possible! Care NOW, will save you LOADS of "correcting time" later, when you are completing your "on-screen" masterpiece !. Be SURE to hit ALL lines, BEFORE you remove the waxpaper copy from your "original."

Next, load TI-ARTIST and put a "frame" around the drawing screen, when helps to align the copy vertically, and can be erased later. Be SURE the copy lies WITHIN this frame, THEN tape it to your screen.

THIS PART IS MOST IMPORTANT! Find a comfortable position, "head-on" to the screen, and begin to "outline" the copy, by placing "DOTS" BEHIND the waxpaper lines. (See sample) DO NOT shift your head sideways! That causes DISTORTION and is HARD to repair later!

AGAIN, the same words of CAUTION apply when placing the dots as when you were making your waxpaper tracing, which is: take your time! DO NOT RUSH TO FINISH IT FAST! carefully place each dot, as CLOSE dot the "center" of each line, as possible ! Although this will SEEM like a long, tedious job to you (and it I), try to think of it as "building a strong foundation."

There is NO WAY you can follow a "traced" line by pushing your joystick and mashing the firebutton! You'll the cursor "wave all over the road" like a drunken driver. Before trying to make your first WAXPAPER RLE, plan to spend several hours with it. Be. patient! Persevere! Your determination and care WILL be rewarded with a real work of art! (AMEN!)

It gets easier now as you play "connect the dots." You may find the ZOOM feature a real help with this. Another tip: SAVE the picture frequently! If you make a major boo/boo, you won't lose TOO much time and sweat by simply reloading the SAVED picture, rather than struggling to repair it.

The FINAL STEP is to give your picture a good "polishing" OR what I had referred to earlier as "correcting time." If you took the time to do all the first steps PROPERLY and your picture is now "connected", simply view "THE BIG PICTURE" and all the "rough spots" will LEAP RIGHT OUT at you!! Adding or erasing a single pixel here and there is all that remains. It sounds simple, doesn't it? (THIS is the HARDEST part!) After you've done all the "correcting", you THINK you can find, SAVE it, then store it way someplace (for a week or two) THEN reload it and compare your picture to the original. If you can't find ANYTHING else wrong with it, it is DONE! (Use MAX-RLE to convert your TI-ARTIST "PICTURE_P" file into a MAX-RLE.)

Some last tips: DON'T strive to ABSOLUTE PERFECTION! That's IMPOSSIBLE! (Garfield's "stripes" nearly ran me up a wall !!!!) BUT, by the same token, if you've waited those two weeks and you spot another "flaw", DO attempt fixing it! IF (due to the limitations inherent in our consoles or TI-ARTIST, OR due to approaching blindness), you CAN'T fix it (after trying for five or six hours), make up some "logical sounding" excuse, when you debut the masterpiece . If you make it "high-tech" enough, ANYBODY will buy it! MY winning line is: "Well, nobody can draw a perfect, curved zig/zag line!"

So here it is! My completed work of art! It's not a 100% perfect copy of the original, but what can you expect from a console with an overloaded frammistan in it's quadilop?!

There are TONS of "copiable" pictures for your "waxpaper RLE digitizer!" (Coloring books for children, atlases, magazines, calendars, etc.) and if any 99'er out there, try doing some Playboy stuff, well, I'd appreciate a copy (before I go totally blind!)

After ALL THAT WORK, it's time for some FUN! Here's a RIDDLE for all you sharp-eyed TI-RUNNER players. WHERE (in TI-RUNNER) do the initials "IBM" appear on the screen? HERE'S A CLUE: Play the game to Level 28, then look in the bricks, but don't look TOO CLOSELY, or you might miss them!) R.K.

See an example of Ray's RLE on back page.

## SINGLE CHIP 32K MEMORY EXPANSION.....

By Joe Spiegel of the Airport Area Computer Club

Joe is still doing it. He has decoded around the ROM in the console using diodes in order to make the use of the new 32K BYTE (single) Chip, the 62256 He has also designed a single sided board that can be etched by you, in order to build this project.

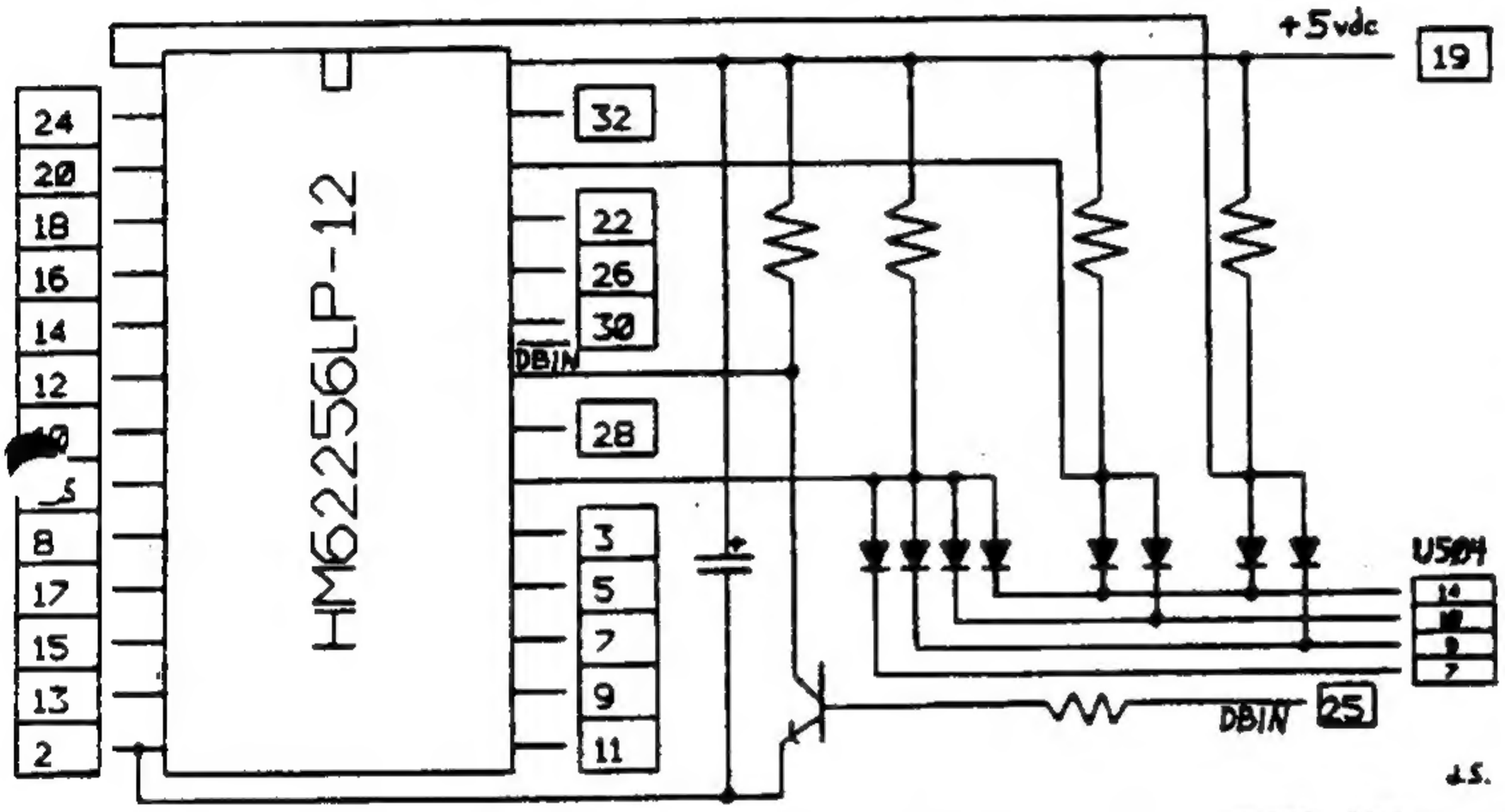
Joe will either send you an etched board for $3.00 (unbelievable), or a complete unit ready to solder (4 wires to the U504 chip in your console), for and get this, $25.00. Hey Joe! Your ruining the neighborhood. You know that for him to do it at these prices, Joe is " doing it for YOU ". He will need your old GROM connector back after you install the unit he builds for you.

Joe, does your wife know that the family will not see you for the next two years. Send inquiries to the :

OR CALL JOE AT: 412 457-8284

AIRPORT AREA COMPUTER CLUB
% JOE SPIEGEL
P.O. BOX 710
CORAOPOLIS, PA 15108

### SINGLE RAM CHIP 32K Expansion




**Notes:**

All resistors - 1K
All diodes - 1N914 or 1N34
Transistor - 2N2222 or 2N3904
Capacitor - 22 mfd Tantalum

All pin numbers refer to connections on the GROM port except the four lines going to U504 on the motherboard.

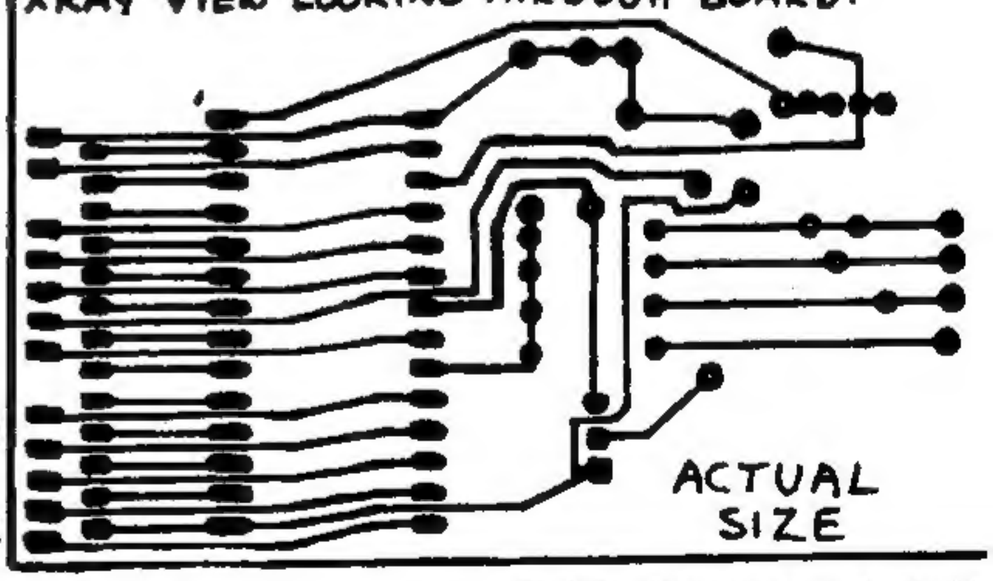
The transistor and its base and collector resistors may be omitted if $\overline{DBIN}$ is obtained from U508, pin 9, on the motherboard.

J.S.

COMPONENT LAYOUT




XRAY VIEW LOOKING THROUGH BOARD.




THE PATTERN ABOVE COULD BE USED TO PHOTO ETCH A BOARD

// EDITED BY John F. Willforth WP99ER APR'87

Ray's RLE in Process

CARFIELD-1 R.L.E. BY RAY KAZNER SAN FERNANDO VALLEY 99'ERS

Finished Product

!! NEWSLETTER SUBSCRIPTION ONLY !!

..... Send se the next ~~6 issues~~ 1 YEAR of the CLEVELAND AREA 99/4A USER GROUP NEWSLETTER. I am enclosing a check or money order for $5.00 PLEASE PRINT.

Name.....
Address.....
City, State.....Zip.....

Mail to: TI User Groups Newsletter
C/o Frank Jenkins, 19809 Gladstone Rd., Cleveland, OH 44122
This subscription is not necessary for fully-paid members.

CLEVELAND AREA 99/4A USERS GROUPS
C/O DEANNA SHERIDAN
20311 LAKE ROAD
ROCKY RIVER, OH 44116

PLEASE NOTE - NEW ADDRESS

CHECK YOUR EXPIRATION DATE.
THIS MAY BE YOUR LAST ISSUE!

!! TIME DATED MATERIAL !!